

Remarks

The above Amendments and these Remarks are in reply to the Final Office Action mailed January 3, 2007. Claims 1-41 were pending in the Application prior to the outstanding Office Action. In the Office Action, the Examiner rejected claims 1-29 and 34. Claims 31-33 and 35-41 were previously withdrawn from consideration. The present Response amends claims 1, 29 and 34 and cancels claims 31-33 and 35-41, leaving for the Examiner's present consideration claims 1-29, and 34. Reconsideration of the rejections is respectfully requested.

I. Double Patenting

Claim 1 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over the claims of U.S. Patent No. 6,660,177. Although the conflicting claims are not identical, they are not patentably distinct from each other because they are claiming the same subject matter in a different wording variation.

The Terminal Disclaimer filed on October 10, 2006 has not been accepted. A proper Terminal Disclaimer in compliance with 37 CFR 1.321(c) is filed herewith to overcome the rejection over claim 1 on the ground of nonstatutory obviousness-type double patenting over the claims of U.S. Patent No. 6,660,177. Accordingly, Applicant respectfully requests that the rejection with respect to this claim be withdrawn.

II. Claim Objections

Claim 29 is objected to because it includes unusual/awkward phrasing, "using the precursor being any of a solid, liquid, and gas."

Claim 29 has been amended to correct the phrasing. Applicant respectfully requests that the objection with respect to this claim be withdrawn.

III. Rejections Under 35 USC § 112

Claims 1-29 and 34 stand rejected under 35 USC § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In particular, the Examiner writes that "the newly recited 'via sub-aperture plasma processing' is supported by the specification but the specification does not clearly set forth the exact meaning of this phrase."

Independent claims 1 and 34 have been amended to clarify the intended meaning of the feature "via sub-aperture plasma processing." Applicant asserts that claims 1-29 and 34 as currently presented are sufficiently definite to comply with 35 USC § 112 and respectfully requests that the objection be withdrawn.

IV. Rejections under 35 USC § 102

Claims 1-14, 18, 20, 22-26, and 34 stand rejected under 35 U.S.C. 102(e) as being anticipated by *Imahashi*, U.S. Patent No. 6,284,668. Applicant respectfully traverses the rejection.

Imahashi discloses a plasma diffusion tool, wherein a plasma is “diffused as a laminar flow on the target surface of the wafer, and uniformly polishes the entire target surface” (See Abstract). In contrast, the torch in the present invention is a precision shaping tool, which is operable to control a footprint of the plasma discharge and direct the plasma discharge to a portion of the surface of the workpiece instead of diffusing over the entire surface as in *Imahashi*. (e.g. see Fig. 4, [0066]-[0070]). Nowhere does *Imahashi* disclose shaping “the surface of the workpiece by controlling a footprint of the plasma discharge from the plasma torch and directs the plasma discharge to a target portion of the surface of the workpiece” as recited in claims 1 and 34. Because *Imahashi* fails to disclose all of the features of claims 1 and 34, *Imahashi* cannot anticipate claims 1 and 34 under 35 U.S.C. §102(e). Dependent claims have at least the features of the independent claims from which they depend, therefore *Imahashi* cannot anticipate claims 2-14, 18, 20, and 22-26 (which ultimately depend from claim 1) under 35 U.S.C. §102(e).

V. Rejection under 35 U.S.C. § 103

1. Claims 15-17 and 19 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Imahashi* as applied to claim 1 above, and further in view of *Selitser*, U.S. Patent No. 6,218,640. Applicants respectfully traverse the rejection.

As argued above in Section IV, *Imahashi* fails to disclose all of the features of claim 1. *Selitser* fails to remedy this deficiency. *Selitser* teaches an inductive plasma torch (col. 4, line 40 – col. 5, line 6), which creates a “large area plasma source” (col. 1, lines 46-47) that treats the entire surface of a workpiece. Referring to col. 8, lines 19-30, *Selitser* teaches that “FIG. 4 illustrates how different types and sizes of substrate 40 and LIPT, 41 and 43, can be arranged...such an arrangement should be done in a way that gives the best uniformity for etch rate on the substrate.” *Selitser* does not teach “controlling a footprint of the plasma discharge” as recited in claim 1 (emphasis added). Rather, *Selitser* teaches grouping plasma torches together to uniformly etch a substrate. The torch of *Selitser* cannot be directed “to a target portion of the surface of the workpiece” because the plasma discharge is not precise enough to be controllable.

Because *Imahashi* in view of *Selitser* fails to teach or suggest all of the features of claim 1, *Imahashi* in view of *Selitser* cannot render claim 1 obvious under 35 U.S.C. § 103(a). Dependent claims have at least the features of the independent claims from which they depend, therefore *Imahashi* in view of *Selitser* cannot render claims 15-17 and 19 (which ultimately depend from claim 1) obvious under 35 U.S.C. §103(a).

2. Claims 17, 19, and 21 stand rejected under 35 U.S.C. 103(a) as being unpatentable over *Imahashi* as applied to claim 1 above and further in view of *Fabel* U.S. Patent No. 4,674,683. Applicants respectfully traverse the rejection.

As argued above in Section IV, *Imahashi* fails to disclose all of the features of claim 1. *Fabel* fails to remedy this deficiency. *Fabel* teaches a plasma flames gun with adjustable ratio of radial and tangential plasma gas flow. *Fabel* teaches that “by changing the ratio of tangential flow, different arc lengths may be selected, and the life of the nozzle may be increased by selectively varying the terminal position of the arc and thereby distributing the wear of the arc on the nozzle.” See col. 6, lines 26-31. Adjusting the arc changes the

temperature profile of the flame, but *Fabel* does not teach *control* of the footprint of the flame. A torch such as taught by *Fabel* is too imprecise to shape a surface of a workpiece as in claim 1, and there's no teaching by *Fabel* that the torch can be directed "to a target portion of the surface of the workpiece" or that such directing can be achieved with the level of precision that the torch of *Fabel* provides.

Because *Imahashi* in view of *Fabel* fails to teach or suggest all of the features of claim 1, *Imahashi* in view of *Fabel* cannot render claim 1 obvious under 35 U.S.C. § 103(a). Dependent claims have at least the features of the independent claims from which they depend, therefore *Imahashi* in view of *Fabel* cannot render claims 17, 19 and 21 (which ultimately depend from claim 1) obvious under 35 U.S.C. § 103(a).

3. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Imahashi* as applied to claim 1 above and further in view of U.S. Patent No. 6,105,534 issued to *Siniaguine, et al.* Applicants respectfully traverse the rejection.

As argued above in Section IV, *Imahashi* fails to disclose all of the features of claim 1. *Siniaguine* fails to remedy this deficiency. *Siniaguine* teaches treatment of substrates placed on two carrousels using a plasma jet having a first cross-section axis P1 and a second cross-sectional axis P2. *Siniaguine* does not teach "controlling a footprint of the plasma discharge" as recited in claim 1 (emphasis added).

Because *Imahashi* in view of *Siniaguine* fails to teach or suggest all of the features of claim 1, *Imahashi* in view of *Siniaguine* cannot render claim 1 obvious under 35 U.S.C. § 103(a). Dependent claims have at least the features of the independent claims from which they depend, therefore *Imahashi* in view of *Siniaguine* cannot render claim 27 (which ultimately depends from claim 1) obvious under 35 U.S.C. § 103(a).

VI. Conclusion

In light of the above, it is respectfully submitted that all of the claims now pending in the subject patent application should be allowable, and a Notice of Allowance is requested. The Examiner is respectfully requested to telephone the undersigned if he can assist in any way in expediting issuance of a patent.

The Commissioner is authorized to charge any underpayment or credit any overpayment to Deposit Account No. 06-1325 for any matter in connection with this response, including any fee for extension of time, which may be required.

Respectfully submitted,

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